What is Claimed:

1. A solid electrolytic capacitor comprising:

a) a valve metal operably attached to a metal lead;

b) a dielectric formed on the surface of said valve metal;

c) a first conductive polymer formed on the surface of said dielectric;

d) a conductive carbon layer coated onto said conductive polymer;

e) a second conductive polymer formed on and infused into said conductive carbon layer;

f) a conductive metal paint coated onto said second conductive polymer;

g) a conductive leadframe attached to said conductive metal paint; and

h) an encapsulating polymeric insulating coating exposing only said metal lead and said conductive leadframe.

2. A solid electrolytic capacitor according to claim 1 wherein said valve metal is selected from the group consisting of tantalum, aluminum and niobium.

3. A solid electrolytic capacitor according to claim 2 wherein said valve metal is a sintered tantalum.

4. A solid electrolytic capacitor according to claim 1 wherein the dielectric formed on the surface of the valve metal is the oxide of the valve metal.

5. A solid electrolytic capacitor according to claim 1 wherein at least one of said first and second conductive polymers is an intrinsically conductive polymer.

6. A solid electrolytic capacitor according to claim 5 wherein both of said first and second conductive polymers are an intrinsically conductive polymer.

7. The solid electrolytic capacitor according to claim 6 wherein said first and second intrinsically conductive polymers are the same.

8. A solid electrolytic capacitor according to claim 6 wherein said first and second intrinsically conductive polymers are different.

9. A solid electrolytic capacitor according to claim 6 wherein said intrinsically conductive polymer is selected from the group consisting of polythiophenes, polypyrroles, polyanilines, polyacetylenes, polydiacetylenes, polynaphthalenes and derivatives thereof.

10. A solid electrolytic capacitor according to claim 9 wherein said intrinsically conductive polymer is a polythiophene.

11. A solid electrolytic capacitor according to claim 9 wherein said polythiophene is poly (3, 4-ethylenedioxythiophene).

12. A solid electrolytic capacitor according to claim 1 wherein said conductive carbon layer is a highly graphitized carbon.

13. A solid electrolytic capacitor according to claim 1 wherein said conductive metal paint is a silver paint.

14. A solid electrolytic capacitor according to claim 1 wherein said encapsulating polymeric insulating coating is an epoxide.

15. A method for making a solid electrolytic capacitor comprising:

a) forming a valve metal pellet by pressing and sintering a powder of a valve metal;

b) attaching a conductive lead to said pellet;

c) anodizing said valve metal pellet to form a dielectric oxide on the surface of said valve metal;

d) forming a first conductive polymer on the surface of said dielectric oxide by polymerization of a monomer thereof;

e) dipping said polymer coated pellet into a suspension of carbon and drying to produce a carbon coated pellet;

f) forming a second conductive polymer in and on said carbon coated pellet by polymerization of a monomer thereof;

g) dipping said polymer coated pellet into a paint containing a conductive metal powder;

h) attaching a leadframe to said paint; and

i) encapsulating said painted pellet in a dielectric polymeric coating.

16. A method according to claim 15 wherein the forming of the first and second conductive polymers is by chemical oxidation of monomers.

17. A method according to claim 16 wherein the monomers are thiophenes.

18. A method according to claim 17 where the monomer is 3,4-ethylenedioxythiophene.

19. The method according to claim 16 wherein the oxidant is iron tosylate.

20. A metal according to claim 15, wherein the step of forming a second conductive polymer is repeated.

21. The method according to claim 15 wherein the paint containing a conductive metal powder is a silver paint.